

# Energizer – Charging for the Next Phase

A balmy breeze has been blowing through the halls, where graphite stocks lay shivering for a long while, and that has turned the focus (pardon the pun) back onto the carbon sub-sector and its more serious players.

The graphite sector was never as over-run with wannabes as the Rare Earth space, so there was never the need for mass attrition as we saw in that less auspicious group.

Energizer Resources Inc. (TSX: EGZ | OTCQX: ENZR) was previously called Uranium Star Corp. when I was first introduced to it a couple of years ago in New York. Its prime focus is the exploration and development of its 100%-owned Green Giant Project located in the extreme south of the island nation of Madagascar off the east coast of Africa. This project is vast and thus encompasses different mineralisations. However at that time it was primarily a Vanadium story, with a sideline in the then barely known graphite. Paradoxically these were two very different minerals but that both had applications in energy storage.

The company's strategy with regard to supplying demand for the emerging Vanadium Radox battery market has, somewhat seamlessly morphed into becoming a graphite contender. This was achieved via the multi-faceted nature of its property in Madagascar, off the eastern coast of Africa. .

## **Molo/Green Giant**

This concession is located 145 km SE of the port city of Tulear with a land position consisting of 36 licenses covering around 225 km<sup>2</sup>.

The property is located in an area that has good access via a

network of seasonal secondary roads from the village of Fotadrevo, which in turn has access to a regional road system that leads to the regional capital of Toliara. Unlike the typical image of Madagascar as lush jungle the part of the island where the property is located is in the rain-shadow and thus it has a dry semi-desert climate subjected to seasonal cyclonic rainfall.

### **Molo – Putting Vanadium in the Shade**

Interestingly I had been presented with a pair of past-producing graphite mines in Madagascar several years back and thus I was not especially surprised to see that Energizer claimed to have discovered that its Green Giant project also contained a viable grade of graphite. However to put this in perspective, past production in Madagascar had never exceeded 12,000 tpa of graphite.

The identification of graphite as a potential credit to the company's vanadium resource led its geologists to conduct a reconnaissance exploration program in September 2011, with the goal of delineating new graphitic trends, and comparing them to those associated with the vanadium mineralization. In the course of this exploration, graphitic trends were identified, which were visually determined to be of both higher carbon content, and larger flake size than those associated with the vanadium mineralization.

The company signed a Joint Venture Agreement in mid-December 2011 with an Australian company, Malagasy Minerals Ltd (MGY.ax) for the exploration and development of industrial minerals. EGZ originally held 75% of the JV, and MGY held the balance. MGY also owned 7.5mn shares of EGZ. EGZ has since moved to take 100% of the venture.

### **Geology & Exploration**

The region around the property has primarily been explored historically for base metal-type occurrences although colonial

geologic services highlighted a wide range of mineral potential in the region. The Besakoa base metal mineral occurrence, located 9 km north of Energizer's property hosts the Besakoa polymetallic prospect (owned 50% by Majescor Resources Inc. and 50% by Sunridge Gold), which was discovered by BRGM (the State Mining Bureau). There were no known historic mineral occurrences on the property.

The Molo deposit exists within a folded sequence over a 2 km strike length. In the north, it is between 50 to 60 metres wide then flares to over 500 metres in width. From this point, the Molo deposit tapers down to a width of approximately 250 to 350 metres. Finally, the deposit splits into two 'arms' of between 50 and 100 metre widths, respectively, which continue for tens of kilometres in length in either direction.

The purpose of Energizer's exploration program was to ascertain the industrial mineral potential of the JV property, in addition to further drill testing of graphitic trends. Based on drill and trench data, as well as mapping, prospecting, and geophysical surveying, graphite mineralization is confirmed at surface and over an area of at least 250,000 m<sup>2</sup>. Drilling consisting of 47 holes (totalling 9,246 metres) and 19 trenches (totaling over 2,100 metres) confirmed that the mineralization is open at depth in excess of 300 metres.

### **Graphite Potential Crystallizes**

With the switch of focus to graphite the company de-emphasized the process of moving the Vanadium forward and instead came up with a NI 43-101 graphite resource which was completed by December 2012. This maiden resource consisted of 124.31 million tonnes, with an Indicated resource totalling 84.04mn tonnes grading 6.36% carbon (C), and an Inferred resource totaling 40.34mn tonnes grading 6.29% C, above a 2% C cut-off grade. The company ran a pilot plant producing 13 tonnes of graphite concentrate. Of this a high percentage (43.5%) came

out as premium extra-large and large flake with up to 97.7% purity achieved with simple flotation.

The PEA study, working on the assumption of open-pit mining, was completed in February 2013 with the main metrics being:

- Recovery: 89%
- Average Head Grade: 8.5%
- Annual production of Graphite: 84,000 tpa
- Strip Ratio of 1.65:1
- Capex of \$162mn
- Operating Costs: US\$418.45 per tonne
- Average selling price: \$1,526 per tonne
- NPV @ 10% discount: US\$421M
- IRR: 48%
- Payback period of three years

The company has an aggressive target for a production start-up in 2015, with an output capacity of between 50,000 and 150,000 tpa. Energizer's technical partner DRA is designing the mine with three 50,000-tonne modules, whereby the Molo mine will begin initially at 50,000 tpa, but can expand to produce additional graphite as the market requires.

Energizer recently completed an infill drilling campaign to upgrade a portion of the Molo deposit to Measured status as part of its Full Feasibility Study (FS), which is on track to be released before the end of this year.

The new mineral resource for the Molo deposit consists of a Measured resource of 23.62 MT grading 6.32% C, an Indicated resource of 76.75 MT grading 6.25% C and an Inferred resource of 40.91mn tonnes at 5.78% C, for a combined total of 141.28mn tonnes at 6.13% C. A cut-off grade of 4% C was used for the "high grade" zones and 2% C for the "low grade" zones. Interestingly while the 'high' grade resource occurs within the 'low' grade resource, each was estimated and reported separately. The resource remains open along strike and to

depth.

According to Energizer, amongst its closest peers, it has a percentage of its deposit at 44% with large flake that is only second to Northern Graphite (60%) but has an advantage over Northern Graphite that its operating cost per tonne at \$418 is substantially lower than Northern's \$795 per tonne. Only Mason Graphite has a lower operating cost per tonne (at \$390).

Energizer has ventured that Molo will be the "world's largest known single source deposit" of high-grade graphite. The company claims that Molo's size and scalability will be a barrier to entry for other producers.

### **Infrastructure Advantages**

As mentioned Madagascar is a country with a number of world-sized mining projects under way but little else in mining (at least until the last decade). As a result infrastructure is very thin in many parts of the country. The semi-arid southwest corner of the country where Energizer's project is located has hitherto been infrastructure poor. This is being remedied though as other projects evolve.



As the image above shows the move to production would theoretically require the upgrading of existing roads, ports, and water supply routes and the importation of diesel power.

One big plus is the relative proximity to the Sakoa coal project (located only 30 kms away), which is under development and raises the possibility of infrastructure-sharing opportunities for the two projects. To this end, Energizer initiated discussions a couple of years back with Asia-Thai Mining, one of the owners of the Sakoa coal project as well as the mine construction company retained to develop the coal project, to identify potential infrastructure sharing opportunities and other synergies. A coal project implies a

rail connection (more important for bringing fuel in than taking ore out in EGZ's case). In addition, a coal source nearby raises the likelihood of the construction of coal-fired electricity generation facilities and high tension power to the Molo site. Lemur Resources is positioning itself to be the one to get a power plant up and running.

After several years of political instability that gave cause for concern to Western donors the situation has improved substantially in the last year. The European Union has reinstated civil infrastructure development projects in Madagascar, beginning with the allocation of funds for the upgrading of the main arterial roadway, Route Nationale 13, which connects the capital city of Antananarivo to the deep water port of Ehoala in Fort Dauphin, which was constructed for and being utilized by Rio Tinto/QMM's ilmenite sands project in the south eastern region of the country. The upgrade will include critical repairs to the RN13, beginning with the portion closest to the Molo Project and eventually ending at the port.



Representatives from the EU have independently confirmed the allocation of tenders in Madagascar for the rehabilitation of the road between Baraketa, which is located ~30 kilometres immediately east of Energizer's Molo Project, to Antanimora in the south. The pace is quickening with the first portion of the road upgrade expected to be completed by December of this year, with the second portion of the works program beginning in early spring of 2015 to extend the road to Ambavombe, where it will intersect with the EU's 2016 program to rehabilitate the third portion, which is the coastal road all the way to Fort Dauphin.

Interestingly the upgrading of RN13 now positions the port of Ehoala as a viable alternative for Energizer to consider as a shipping port, instead of Tulear and Soalara. While Ehoala

(where the port was built and is owned by RTZ) is farther from Molo than Tulear, Ehoala is "Asia-facing" and has significant shipping traffic already. It is multi-purpose and accommodates bulk carriers, cruise ships, container ships and refrigeration vessels. Most importantly it has significant excess capacity.

The PEA from 2013 only considered utilising Tulear as the port outlet for exports. It factored in Energizer bearing the entire cost of maintaining a regional network of gravel roads. The upcoming FS has been reoriented towards the opportunity Ehoala's port infrastructure brings, without the previously envisioned capital and operating restraints considered in the PEA Study. This has the potential to positively impact the projected mine economics by reducing overall transportation costs to customer destination.

## **Conclusion**

Energizer's switch to graphite from Vanadium, in a tough financing environment, was a smart one as Vanadium is a much longer fuse story than graphite. The former will need a turn in prices plus a major turn in sentiment on the steel sector before it starts to gain traction again. Graphite, on the other hand is likely to maintain its currency until such time as there are enough Western producers to allay supply fears. Energizer, with its Feasibility Study imminent, has barged its way to near the front of the pack. This is essentially a reiteration of the same idea I have propagated in lithium and REEs that the first few sizeable projects through the gate effectively kill off the prospects of latecomers (no matter what their virtues might be).

The main focus now must be on capex, which at \$162mn is at the daunting end of the current financing environment. As the largest part of the capex is plant cost at \$68mn (to which then construction indirects and contingencies depend) the downsizing of the output in the short term might be one way of making this more bite-sized from the financing point of view.

The FS will make interesting reading.

Energizer is a graphite play with a very doable and advanced project, with no challenging geography to deal with and infrastructure gradually accumulating in the area from work done by other mining companies operating or building in Southern Madagascar. Better than RTZ, Sakoa and the EU foot that bill than EGZ's shareholders.

As a bonus, if added value was needed, it comes with a Vanadium "option" embedded within it for future consideration or spin-out.